

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-32

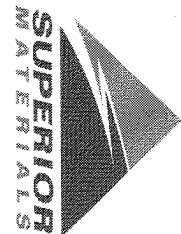
Sample Date: 5/15/23

Dates Test Represents: 5/16/2023 through 5/22/2023

Concrete Grade: **S2M, 3500HP**

Contractor: _____

MDOT No.: _____



Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

| Agg. Class | Pit # | Source | Weight (SSD) | ft ³ | Specific Gravity | Contribution % | |
|-----------------|--------|--------------|--------------|-----------------|------------------|----------------|--------------|
| 6AA | 71-47 | Presque Isle | 1670 | 10.21 | 2.62 | 54.8 | |
| 26A | 71-47 | Presque Isle | 150 | 0.92 | 2.62 | 4.9 | |
| 2NS | 95-013 | Smelter Bay | 1230 | 7.44 | 2.65 | 40.3 | |
| Total Wt | | | | | | 3050 | 100.0 |

| Sieve | 6AA | 26A | 2NS | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|-------|-------|-------|----------------------|------------|-----------------------|
| 2" | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 | 0.0 |
| 1.5" | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 | 0.0 |
| 1" | 99.3 | 100.0 | 100.0 | 99.6 | 0.4 | 0.4 |
| 3/4" | 86.9 | 100.0 | 100.0 | 92.8 | 6.8 | 7.2 |
| 1/2" | 53.2 | 100.0 | 100.0 | 74.3 | 18.5 | 25.7 |
| 3/8" | 30.7 | 89.2 | 100.0 | 61.5 | 12.8 | 38.5 |
| #4 | 5.0 | 24.6 | 95.9 | 42.6 | 18.9 | 57.4 |
| #8 | 1.8 | 5.9 | 84.3 | 35.3 | 7.3 | 64.7 |
| #16 | 1.4 | 3.3 | 68.8 | 28.7 | 6.6 | 71.3 |
| #30 | 1.3 | 2.8 | 48.4 | 20.4 | 8.3 | 79.6 |
| #50 | 1.3 | 2.6 | 22.7 | 10.0 | 10.4 | 90.0 |
| #100 | 1.2 | 2.4 | 6.5 | 3.4 | 6.6 | 96.6 |
| LBW | 1.1 | 2.1 | 1.0 | 1.1 | 2.3 | 98.9 |

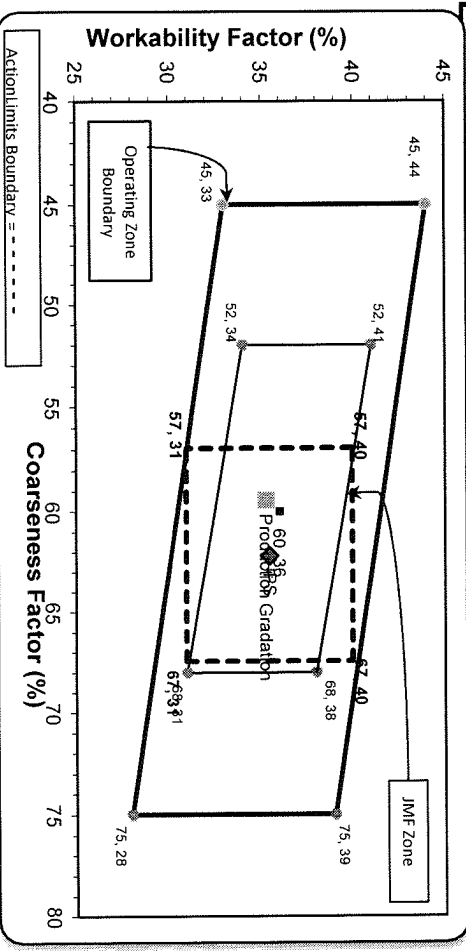
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max.
nom. max.: #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max.
nom. max.: #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Initial Production Sample (IPS)

Coarseness Factor: **59** Workability Factor: **35**

Coarseness Factor: **62** Workability Factor: **35**



| Sieve | Cumulative % Passing | % Retained | Cumulative % Retained |
|-------|----------------------|------------|-----------------------|
| 2" | 100.0 | 0.0 | 0.0 |
| 1.5" | 100.0 | 0.0 | 0.0 |
| 1" | 100.0 | 0.0 | 0.0 |
| 3/4" | 94.0 | 6.0 | 6.0 |
| 1/2" | 70.2 | 23.7 | 29.8 |
| 3/8" | 59.9 | 10.4 | 40.1 |
| #4 | 42.7 | 17.2 | 57.3 |
| #8 | 35.5 | 7.2 | 64.5 |
| #16 | 28.4 | 7.0 | 71.6 |
| #30 | 19.2 | 9.2 | 80.8 |
| #50 | 8.9 | 10.3 | 91.1 |
| #100 | 3.1 | 5.9 | 96.9 |
| LBW | 1.4 | 1.7 | 98.6 |

PREPARED BY:
SM, LLC Technical Service

Approved By: _____

Basic Quality Statistical Summary Report

Plant 958-JMT
 Product 1054-6AA LS PI
 Specification 6AA LS PI Spec
 Period 05/14/2023 - 05/20/2023

| Sieve/Test | Tests | Average | St Dev | Target | Specification |
|-----------------------|-------|---------|--------|--------|---------------|
| 2" (50mm) | 1 | 100.0 | | | |
| 1 1/2" (37.5mm) | 1 | 100.0 | | | 100-100 |
| 1" (25mm) | 1 | 99.3 | | | 95-100 |
| 3/4" (19mm) | 1 | 86.9 | | | |
| 1/2" (12.5mm) | 1 | 53.2 | | | 30-60 |
| 3/8" (9.5mm) | 1 | 30.7 | | | |
| #4 (4.75mm) | 1 | 5.0 | | | 0-8 |
| #8 (2.36mm) | 1 | 1.8 | | | |
| #16 (1.18mm) | 1 | 1.4 | | | |
| #30 (.6mm) | 1 | 1.3 | | | |
| #50 (.3mm) | 1 | 1.3 | | | |
| #100 (.15mm) | 1 | 1.2 | | | |
| #200 (75µm) | 1 | 1.1 | | | |
| Pan | 1 | 0.0 | | | |
| Wash Loss (#200/75um) | 1 | 1.1 | | | 0-2 |
| Total Moisture | 1 | 2.0 | | | |

Basic Quality Statistical Summary Report

Plant 958-JMT
 Product 1067-26A Mod LS
 Specification 26A Mod LS Spec
 Period 05/14/2023 - 05/20/2023

| Sieve/Test | Tests | Average | St Dev | Target | Specification |
|-----------------------|-------|---------|--------|--------|---------------|
| 2" (50mm) | 1 | 100.0 | | | |
| 1 1/2" (37.5mm) | 1 | 100.0 | | | |
| 1" (25mm) | 1 | 100.0 | | | |
| 3/4" (19mm) | 1 | 100.0 | | | 100-100 |
| 1/2" (12.5mm) | 1 | 98.2 | | | 95-100 |
| 3/8" (9.5mm) | 1 | 89.2 | | | 60-95 |
| #4 (4.75mm) | 1 | 24.6 | | | 5-30 |
| #8 (2.36mm) | 1 | 5.9 | | | 0-12 |
| #16 (1.18mm) | 1 | 3.3 | | | |
| #30 (.6mm) | 1 | 2.8 | | | |
| #50 (.3mm) | 1 | 2.6 | | | |
| #100 (.15mm) | 1 | 2.4 | | | |
| #200 (75µm) | 1 | 2.2 | | | |
| Pan | 1 | 0.0 | | | |
| Wash Loss (#200/75um) | 1 | 2.1 | | | 0-3 |
| Total Moisture | 1 | 3.0 | | | |

Basic Quality Statistical Summary Report

Plant 958-JMT
 Product 1022-2NS GR - Smelter Bay
 Specification 2NS GR Spec
 Period 05/14/2023 - 05/20/2023

| Sieve/Test | Tests | Average | St Dev | Target | Specification |
|-----------------------|-------|---------|--------|---------|---------------|
| 3/8" (9.5mm) | 1 | 100.0 | | | 100-100 |
| #4 (4.75mm) | 1 | 95.9 | | | 95-100 |
| #8 (2.36mm) | 1 | 84.3 | | | 65-95 |
| #16 (1.18mm) | 1 | 68.8 | | | 35-75 |
| #30 (.6mm) | 1 | 48.4 | | | 20-55 |
| #50 (.3mm) | 1 | 22.7 | | 18-28 | 10-30 |
| #100 (.15mm) | 1 | 6.5 | | | 0-10 |
| #200 (75µm) | 1 | 1.6 | | | |
| Pan | 1 | 0.0 | | | |
| FM | 1 | 2.73 | | 2.7-2.9 | 2.6-3 |
| Wash Loss (#200/75µm) | 1 | 1.0 | | | 0-3 |
| Total Moisture | 1 | 4.3 | | | |